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UNITED STATES PATENT AND TRADEMARK OFFICE

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| In re Application of: | Friedrich Arnold et al. |
| Application Number: | 10/532,255 |
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| Group Art Unit: | 3744 |
| Examiner: | Chen Wen Jiang |
| Title: | PROCESS AND DEVICE FOR MONITORING TEMPERATURE IN A REFRIGERATOR |

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Commissioner for Patents
P.O. Box 1450
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## APPEAL BRIEF

Pursuant to 37 CFR 1.192, Appellants hereby file an appeal brief in the above-identified application. This Appeal Brief is accompanied by the requisite fee set forth in 37 CFR 1.17(f).

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## (1) REAL PARTY IN INTEREST

The real party in interest is BSH Bosch und Siemens Hausgeräte GmbH. The application and the invention disclosed in the application were assigned to BSH Bosch und Siemens Hausgeräte GmbH by virtue of an Assignment executed on March 8, 2005, March 17, 2005 and March 30, 2005, which is recorded at Reel 17078, Frame 659 of the U.S. Patent & Trademark Assignment Records, effective April 21, 2005.

## (2) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

## (3) STATUS OF CLAIMS

Claims 1-12 have been canceled. Claims 25, 26 and 32 have been withdrawn from consideration. Claims 13-24 and 27-31 are pending and stand rejected.

## (4) STATUS OF AMENDMENTS

All Amendments, including the Amendment filed April 15, 2009 have been entered.

## (5) SUMMARY OF CLAIMED SUBJECT MATTER

A description of the subject matter recited in the pending claims that are argued separately is set forth below, along with an indication of the portions of the specification and drawings that provide support for these features.

A. Independent Claim 13

Claim 13 is directed to a processs for monitoring the temperature in a refrigerator. The process includes forming a unit from a temperature sensitive element

and a thermal buffer liquid in a substantially transparent container. Claim 13 also recites that the temperature sensitive element is in substantially non-insulated contact with said thermal buffer liquid. A unit as recited in claim 13 is illustrated in Figures 2-4. As shown therein, a temperature sensitive element 13 and a thermal buffer liquid 12 are located in a substantially transparent container 11. The temperature sensitive element 13 is in substantially non-insulated contact with the thermal buffer liquid 12. See the specification at page 6, lines 17-36.

Claim 13 further recites placing the unit container at a site to be monitored inside the refrigerator. As shown in Figure 1 of the application, the unit including the substantially transparent container 11, the thermal buffer liquid 12 and the temperature sensitive element 13 is placed in a site to be monitored inside a refrigerator 1. Figure 1 shows the unit on a shelf of the refrigerator 1. See the specification at page 6, lines 17-19 and at page 7, lines 15-19.

Finally, claim 13 recites visually observing said temperature sensitive element as it is in said substantially transparent container to determine if a temperature variable property of said temperature sensitive element indicates that the temperature in the refrigerator is at, below or above a predetermined temperature range. As explained in the specification at page 7, lines 1-14, the temperature sensitive element 13 could have a portion 14 (in this case, the eyes of the fish) which is locally colored with a dye that clearly and visibly changes its color in a temperature interval of a few degrees C. For instance, the dye could change from black to green as the temperature of the element 13 changes from 7° to 10°C. Such temperature sensitive dyes can change their color over a variety of different temperature limits, depending on the actual dye that is used. Thus, one could observe the temperature sensitive dye portion 14 while the element 13 is located in the thermal buffer liquid 12 to determine if the temperature of the thermal buffer liquid is at, below or above a predetermined temperature range.

B. Independent Claim 17

Claim 17 is directed to a unit for monitoring the temperature in a refrigerator. Claim 17 recites a container having a substantially transparent portion, said container

being placeable at a site to be monitored inside the refrigerator, at which site cooled air at least partially surrounds said container. As shown in Figures 1 and 2, a container 11 having a substantially transparent portion is placed at a site to be monitored in a refrigerator 1. Cooled air within the refrigerator would at least partially surround the container. See the specification at page 6, lines 17-36 and at page 7, lines 15-19.

Claim 17 recites that a thermal buffer liquid is in said container. As illustrated in Figures 2-4, a thermal buffer liquid 12 is in the container 11. See the specification at page 6, lines 17-36.

Claim 17 also recites a temperature sensitive element in thermal contact with said buffer liquid. As illustrated in Figures 2-4, a temperature sensitive element 13 is located in and in thermal contact with the buffer liquid 12 in the container 11. See the specification at page 6, lines 17-36.

Claim 17 also recites that when the container is located at the site to be monitored inside the refrigerator, the container retains therein the buffer liquid in a manner such that said buffer liquid is not thermally isolated from the cooled air at least partially surrounding said container, and that the container and the buffer liquid are subject to variations in its temperature in correspondence with respective increases and decreases in the cooled air at least partially surrounding said container. As shown in Figure 1, the container 11 and the buffer liquid 12 are surrounded by the air in the refrigerator 1, and the container 11 and buffer liquid are subject to variations in the temperature of the air in the refrigerator 1. See the specification at page 7, lines 15-26.

Claim 17 also recites that the temperature sensitive element is supported within said container relative to said substantially transparent portion of said container such that a user can visually observe a temperature variable property of said temperature sensitive element via said substantially transparent portion of said container to determine if a temperature in the refrigerator at a location external to the unit is at, below, or above a predetermined temperature range. As explained in the specification at page 7, lines 1-14, the temperature sensitive element 13 could have a portion 14 (in this case, the eyes of the fish) which is locally colored with a dye that clearly and visibly

changes its color in a temperature interval of a few degrees C. For instance, the dye could change from black to green as the temperature of the element 13 changes from 7° to 10°C. Such temperature sensitive dyes can change their color over a variety of different temperature limits, depending on the actual dye that is used.

C. Independent Claim 27

Claim 27 is directed to a temperature sensitive element for a unit for monitoring the temperature in a refrigerator. Claim 27 recites that the unit includes a container with a thermal buffer liquid in said container. As shown in Figures 2-4, a unit for monitoring the temperature in a refrigerator includes a container 11 with a thermal buffer liquid 12 in the container 11. See the specification at page 6, lines 17-36.

Claim 27 recites that the temperature sensitive element includes a body for thermal contact with the buffer liquid, the body immersed to swim in said buffer liquid. As shown in Figures 2-4, a body 13 including a temperature sensitive element 14 is immersed in the thermal buffer liquid 12. See the specification at page 6, lines 17-36.

Claim 27 also recites that the body has different substantially discrete values of a property which can be, in an observation event, visually observed of at least one of above or below a temperature limit to be monitored and said body remaining immersed in said buffer liquid during each observation event. As explained in the specification at page 7, lines 1-14, the temperature sensitive element 13 could have a portion 14 (in this case, the eyes of the fish) which is locally colored with a dye that clearly and visibly changes its color in a temperature interval of a few degrees C. For instance, the dye could change from black to green as the temperature of the element 13 changes from 7° to 10°C. Such temperature sensitive dyes can change their color over a variety of different temperature limits, depending on the actual dye that is used.

## (6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 13-22, 27, 28 and 31 are obvious, under 35 U.S.C. §103(a) over Ryan (U.S. Patent No. 5,004,355), in view of Takahashi (Japanese Patent Publication No. 52-230128).

B. Whether claims 23, 24, 29 and 30 are obvious, under 35 U.S.C. §103(a) over Ryan, in view of Takahashi, and further in view of Witonsky (U.S. Patent Publication No. 2003/0147450).

## (7) ARGUMENT

A. Claims 13-22, 27, 28 and 31

Claims 13-22, 27, 28 and 31 were rejected under 35 U.S.C. 103(a) over U.S. Patent No. 5,004,355 to Ryan ("Ryan"), in view of Japanese Application No. 59-230128 to Takahashi ("Takahashi"). For the reasons provided below, it is respectfully submitted that the combination of Takahashi with Ryan is improper, and that for this reason, the rejection should be withdrawn.

Ryan discloses a temperature measuring apparatus which includes a thermometer 12 which is mounted inside a receptacle 20. As shown in Figs. 1 and 2 of Ryan, a cap 28 on the receptacle 20 includes a sealable aperture 30. The thermometer is inserted through the aperture 30 so that the bulb and lower portion of the thermometer 12 are immersed in a liquid bath 32 within the receptacle 20. The receptacle 20 and thermometer 12 are then mounted inside a cover member 36 which is sealed with a cap 42. The cover member 36 with the enclosed receptacle and thermometer are then mounted on a holder 44 which can be attached to the interior of a refrigeration unit.

The Takahashi reference discloses a temperature sensing device which is intended to determine the temperature of a water bath. More specifically, the device is intended to indicate multiple different temperatures at multiple at different depths within the water bath. As shown in Fig. 1 of Takahashi, a plurality of temperature sensing devices 1/4 are attached along a string 2 which is attached to a float 3. Each of the temperature indicators 1/4 changes color at a certain temperature to provide an indication of whether the water surrounding the temperature indicator is above or below a predetermined temperature. Because the temperature indicators 1/4 are aligned along a string 2 which descends down into the water within a bathtub, each of the temperature sensors 1/4 is located at a different depth within the water. The user can note the colors of the various temperature indicators to learn the temperatures at different depths within the water.

The Examiner has asserted that one of ordinary skill in the art would have found it obvious to modify the Ryan temperature sensing device, based on the teachings of the Takahashi reference, to arrive at a temperature monitoring process as recited in independent claim 13, or a unit for monitoring the temperature in a refrigerator as recited in independent claims 17 and 27. Applicants respectfully disagree.

The temperature measuring apparatus disclosed in Ryan already includes a thermometer which provides a very specific indication of the temperature of the liquid 32 within the receptacle 20. Because Ryan uses a thermometer, the temperature measuring apparatus provides an exact indication of the actual temperature of the liquid 32.

The temperature sensing devices in the Takahashi reference change color when the temperature transitions through a predetermined temperature range. For instance, Takahashi discloses that the temperature sensing elements would change color between 40ºC and 45ºC. Thus, the Takahashi temperature sensing devices only provide an indication about whether the temperature of the surrounding liquid is above or below a narrow predetermined range of temperatures. Takahashi's devices do not provide any indication of the exact temperature. The temperature of a water bath could

be 2ºC or 39ºC, and the temperature indicators would look the same. Likewise, the temperature in the water bath could be 46ºC or 99 ºC, and the temperature indicators would look the same.

In the comments included with the Advisory Action issued September 28, 2009, the Examiner states that the test for obviousness is what the combined teachings would have suggested to those of ordinary skill in the art. Applicants agree with this statement of the test. However, Applicants respectfully contend that one of ordinary skill in the art, viewing both references, would not have been motivated to replace Ryan's thermometer with the Takahashi temperature indicators. Doing so would reduce the effectiveness, accuracy and usefulness of the Ryan temperature measuring apparatus. Specifically, once that substitution is made, Ryan's temperature sensing apparatus would no longer be able to provide an indication of the actual temperature of the liquid within the device. As said, the device would only provide an indication about whether the temperature of the liquid is above or below a predetermined narrow range of temperatures. Thus, combining Ryan and Takahashi as asserted destroys or at least greatly reduces the utility of Ryan's temperature measuring apparatus. For all these reasons, it is respectfully submitted that the combination of Ryan and Takahashi is improper.

Further, it is respectfully submitted that it requires the improper use of hindsight, in view of Applicants' own invention, to find a motivation to substitute the Takahashi temperature indicators for the thermometer disclosed in Ryan. Neither of the references provides any motivation for doing so, and those of ordinary skill in the art would not have thought to make the substitution because doing so would result in a less accurate and less useful temperature indicating device. In view of these facts, the only way to find a motivation for making the substitution is through the impermissible use of hindsight. For these additional reasons, it is respectfully submitted that the combination of references is improper.

In view of all the foregoing, withdrawal of the rejection of claims 13-22, 27, 28 and 31 over Ryan, in view of Takahashi, is respectfully requested.

B. Claims 23, 24, 29 and 30

Claims 23, 24, 29 and 30 are rejected over Ryan, in view of Takahashi, and further in view of Witonsky. As noted above, the combination of Ryan and Takahashi is improper. For at least this reason, it is respectfully submitted that the rejection of claims 23, 24, 29 and 30 is also improper, and that this rejection also should be withdrawn.

(8) CONCLUSION

In view of the foregoing discussion, Appellants respectfully request reversal of the Examiner's rejection.

Respectfully submitted,

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## CLAIMS APPENDIX

1 -12. (Canceled)

13. (Rejected) A processs for monitoring the temperature in a refrigerator, comprising:

forming a unit from a temperature sensitive element and a thermal buffer liquid in a substantially transparent container with said temperature sensitive element being in substantially non-insulated contact with said thermal buffer liquid;

placing the unit container at a site to be monitored inside the refrigerator; and

visually observing said temperature sensitive element as it is in said substantially transparent container to determine if a temperature variable property of said temperature sensitive element indicates that the temperature in the refrigerator is at, below or above a predetermined temperature range.

14. (Rejected) The process according to Claim 13, including selecting a quantity of said thermal buffer liquid such that temperature equalization of said unit and said refrigerator site requires at least about one hour.

15. (Rejected) The process according to Claim 13, including forming said thermal buffer liquid from water.

16. (Rejected) The process according to Claim 13, including forming said temperature dependent variable property of said temperature sensitive element without using any external energy supply.

17. (Rejected) A unit for monitoring the temperature in a refrigerator, comprising:

a container having a substantially transparent portion, said container being placeable at a site to be monitored inside the refrigerator at which site cooled air at least partially surrounds said container;

a thermal buffer liquid in said container; and

a temperature sensitive element in thermal contact with said buffer liquid, said container, when located at the site to be monitored inside the refrigerator, retaining therein said buffer liquid in a manner such that said buffer liquid is not thermally isolated from the cooled air at least partially surrounding said container and is subject to variations in its temperature in correspondence with respective increases and decreases in the cooled air at least partially surrounding said container, and said temperature sensitive element being supported within said container relative to said substantially transparent portion of said container such that a user can visually observe a temperature variable property of said temperature sensitive element via said substantially transparent portion of said container to determine if a temperature in the refrigerator at a location external to the unit is at, below, or above a predetermined temperature range.

18. (Rejected) The unit according to Claim 17, including said container having a capacity for said buffer liquid in the range of about fifty (50) to two hundred and fifty (250) cubic centimeters.

19. (Rejected) The unit according to Claim 17, including said temperature sensitive element is located inside said container and can swim in said buffer liquid.

20. (Rejected) The unit according to Claim 17, including said temperature sensitive element has different substantially discrete values of a property which can be visually observed of at least one of above or below a temperature limit to be monitored.

21. (Rejected) The unit according to Claim 20, including said property changes its value in a temperature range of about seven (7) and ten (10) degrees Celsius above said temperature limit.

22. (Rejected) The unit according to Claim 20, including said property is the color of at least one portion of said temperature sensitive element.

23. (Rejected) The unit according to Claim 22, including said temperature sensitive element has a plurality of separate portions with different properties.

24. (Rejected) The unit according to Claim 23, including said separate portions with different properties are separate colors with different temperature limits for said property changes.

25. (Withdrawn) The unit according to Claim 19, including said temperature sensitive element is lighter than said buffer liquid and includes at least one of a ballast or tether to a bottom of said container to maintain said temperature sensitive element immersed in said buffer liquid.

26. (Withdrawn) The unit according to Claim 19, including said temperature sensitive element is heavier than said buffer liquid and includes at least one float in said container connected to said temperature sensitive element to maintain said temperature sensitive element immersed in said buffer liquid.

27. (Rejected) A temperature sensitive element for a unit for monitoring the temperature in a refrigerator, the unit including a container with a thermal buffer liquid in said container, said temperature sensitive element:
a body for thermal contact with the buffer liquid;

said body immersed to swim in said buffer liquid; and
said body has different substantially discrete values of a property which can be, in an observation event, visually observed of at least one of above or below a temperature limit to be monitored and said body remaining immersed in said buffer liquid during each observation event.

28. (Rejected) The temperature sensitive element according to Claim 27, including said property is the color of at least one portion of said body.

29. (Rejected) The temperature sensitive element according to Claim 28, including said body has a plurality of separate portions with different properties.

30. (Rejected) The temperature sensitive element according to Claim 29, including said separate portions with different properties are separate colors with different temperature limits for said property changes.

31. (Rejected) The temperature sensitive element according to Claim 27, including said body is in the form of a fish.

32. (Withdrawn) The temperature sensitive element according to Claim 27, including said body is one of lighter than said buffer liquid and includes at least one of a ballast or tether to a bottom of said container to maintain said body immersed in said buffer liquid and heavier than said buffer liquid and includes at least one float in said container connected to said body to maintain said body immersed in said buffer liquid.

## EVIDENCE APPENDIX

NONE

RELATED PROCEEDINGS APPENDIX

NONE